



education

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Education
REPUBLIC OF SOUTH AFRICA

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DEPARTMENT OF LABOUR
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EXAMINATION CENTRE MANAGERS
EXAMINERS AND MODERATORS
SOUTH AFRICAN COLLEGE PRINCIPALS ORGANISATION (SACPO)

EXAMINATION INSTRUCTION NO. 08 OF 2009

REVISED SYLLABUS FOR INSTALLATION RULES AND SPECIALISED ELECTRICAL INSTALLATION CODES

Please find attached the revised syllabus for Installation Rules and Specialised Electrical Installation codes.

The first examination will be written in August 2009.


SJP SISHI

CHIEF DIRECTOR: NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT

DATE: 2009 — 05 — 28

CC HEADS OF PROVINCIAL DEPARTMENTS
DIRECTOR GENERAL
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REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

POST VOCATIONAL EDUCATION: FET COLLEGES

SYLLABUS

FOR

INSTALLATION RULES

NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT

PROGRAMME NUMBER

51108848

EXAMINATION INSTRUCTION NO. 08 OF 2009

Date of implementation

May 2009

First examinations

August 2009

1. AIMS

1.1. GENERAL AIMS

- 1.1.1. The general aim is to teach the theoretical knowledge contained in applicable SABS standards and codes, and the Occupational Health and Safety, Act 85 of 1993 (latest publication), which are pertinent, and to ensure that it can be applied realistically in practice.
- 1.1.2. The fundamental principles underlying these codes of practice are primarily intended to ensure the safety of persons, livestock and property against hazards that may arise during the normal operation and the proper functioning of an installation.

1.2. SPECIFIC AIMS

Any person attempting the examination must be able to apply the Regulations set out; to design, construct, inspect, verify and to test electrical installations accordingly, and thereby ensure a safe and healthy environment.

2. DURATION OF THE COURSE

One trimester for each examination (part time)

It is recommended that the entire syllabus be lectured over a period of 6 months (two trimesters) due to the extent of the new syllabus.

3. EXAMINATION

- 3.1 Two three-hour national examination papers will be set comprising 100 marks each for each trimester.
No admission requirements are necessary.
- 3.2 The pass mark for Paper 1 and Paper 2 is 50%.

Both examination papers may be written during the same trimester period. However, candidates need not to pass both examinations during the same trimester, but the second examination must be passed within 12 months of the first, otherwise both examinations must be re-written. However, if a candidate obtains 75% of 100 marks in any one of the examinations, he or she will be permanently exempted from re-writing that examination. A minimum pass of 50% for each examination paper must be obtained in the instructional offering Installation Rules. An appropriate statement of results will be issued by the Department of Education.

For accreditation purposes, all candidates must also have proof of competence with regard to the required unit standards prescribed by the Department of Labour. The information brochure for registration is available on the Department of Labour's website: <http://www.labour.gov.za/documents/useful-documents/occupational-health-and-safety/information-brochure-for-application-of-accredited-person-for-electrical-installation>

- 3.3 No condonation will be considered.

- 3.4 Taxonomies such as knowledge, understanding and application are important aspects of these examinations and the proportion of these in the question papers should be as follows:

Knowledge	-	20%
Understanding	-	30%
Application	-	50%

- 3.5 Tables for the applicable codes will be provided.

4 THE SYLLABUS FOR PAPER 1 AND PAPER 2 WILL CONSIST OF THE FOLLOWING:

4.1. SPECIFIC CONTENTS PAPER 1 (CODE: 11040412)

- 4.1.1. Occupational Health and Safety Act, Act 85 of 1993
Section 1, 8, 9, 10 and 22
- 4.1.2 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Installation Regulations
Regulations 1 to 14
- 4.1.3 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Machinery Regulations
Regulation 1, 3, 5, 6 and 11
- 4.1.4 Occupational Health and Safety Act, Act 85 of 1993 - Construction Regulations
Regulations 22
- 4.1.5 SANS 10142-1:2008
The wiring of premises Part 1: Low voltage installations
- Section 1 - Scope
- Section 2 - Normative references
- Section 3 - Definitions
- Section 4 - Compliance
- Section 5 - Fundamental requirements
- Section 7 - Special installations or locations
- Annexure D - Example of assessing estimated and connected load.
- Annexure F - Recommended bending of cables
- Annexure G - Examples of determining the conduit size required for single-core cables of different sizes.

Annexure J - Explanation of IP ratings

Annexure M - Electricity supply systems

Annexure P - Authority for issuing a Certificate of Compliance

Annexure Q - IEC symbols associated with switchgear

4.1.6 SANS 10198-1:2004

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1: Definitions and statutory requirements

4.1.7 SANS 10198-2:2004

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 2: Selection of cable type and methods of installation

NOTE: No calculations will be asked on this standard

4.1.8 SANS 10292:2001

Earthing of low-voltage (LV) distribution systems

TOTAL MARKS: 100

4.2 SPECIFIC CONTENTS PAPER 2 (CODE: 11040432)

4.2.1 SANS 10142-1 2008

The wiring of premises Part 1: Low voltage installations

Section 6 - Installation requirements

Section 8 - Verification and certification

Annexure B - Limits of “arm’s reach”

Annexure C - Installation components

Annexure E - Calculation of voltage drop

Annexure K - Notification of a potential danger

Annexure L - Installations of surge protection devices (SPDs) into low-voltage systems

Annexure N - Earthing arrangements and equipotential bonding of information technology installations for functional purposes

Annexure O - Classification of safety services necessary for medical locations

4.2.2 SANS 1973-3:2008

Low-voltage switchgear and controlgear assemblies Part 3: Safety of assemblies with a rated prospective short-circuit current of up to and including 10 kA

TOTAL MARKS: 100

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

POST VOCATIONAL EDUCATION: FET COLLEGES

SYLLABUS

FOR

SPECIALISED ELECTRICAL INSTALLATION CODES

NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT

PROGRAMME NUMBER

51108849

EXAMINATION INSTRUCTION NO. 08 OF 2009

Date of implementation

May 2009

First examinations

August 2009

1 AIMS

1.1 GENERAL AIMS

- 1.1.1 The general aim is to understand the theoretical knowledge contained in the South African Bureau of Standard's code's of practice for Specialised Electrical Installations 1 and the OHS Act 85 of 93 (latest publication) so that these theoretical principles can be realistically applied in practice.
- 1.1.2 The fundamental principles underlying these codes of practice are primarily intended to ensure the safety of persons, livestock and property against hazards that may arise during the normal operation and the proper functioning of an electrical installation.

1.2 SPECIFIC AIMS

Any person attempting the examination must be able to apply the regulations set out; to design, construct, inspect, verify and test electrical installations accordingly and thereby ensure a safe and healthy environment.

2 DURATION OF THE COURSE

One trimester for each examination (part time).

3 EXAMINATION

- 3.1 Two three hour national examination papers will be set comprising 100 marks each.
No admission requirements are necessary.
- 3.2 The pass mark for Paper 1 and Paper 2 is 50%.

Both examination papers may be written during the same trimester period. However, candidates need not to pass both examinations during the same trimester, but the second examination must be passed within 12 months of the first, otherwise both examinations must be re-written. However, if a candidate obtains 75% of 100 marks in any one of the examinations, he or she will be permanently exempted from re-writing that examination. A minimum pass of 50% for each examination paper must be obtained in the instructional offering Specialized Electrical Installation Codes. An appropriate statement of results will be issued by the Department of Education.

For accreditation purposes, all candidates must also have proof of competence with regard to the required unit standards prescribed by the Department of Labour. The information brochure for registration is available on the Department of Labour's website: <http://www.labour.gov.za/documents/useful-documents/occupational-health-and-safety/information-brochure-for-application-of-accredited-person-for-electrical-installation>

- 3.3 No condonation will be considered.

- 3.4 Taxonomies such as knowledge, understanding and application are important aspects of these examinations and the proportion of these in the question papers should be as follows:

Knowledge	-	20%
Understanding	-	30%
Application	-	50%

During the examinations, tables for the applicable codes will be provided.

4 THE SYLLABUS FOR PAPER 1 AND PAPER 2 WILL CONSIST OF THE FOLLOWING:

4.1 SPECIFIC CONTENTS PAPER 1 (CODE: 8080654)

- 4.1.1. Occupational Health and Safety Act, Act 85 of 1993
Section 1, 8, 9, 10 and 22
- 4.1.2 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Installation Regulations
- 4.1.3 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Machinery Regulations
- 4.1.4 SANS 10142-1:2008
The wiring of premises Part 1: Low-voltage installations (Scope and with the emphasis on medical locations and Annex M)
- 4.1.5 SANS 10108:2005
The classification of hazardous locations and the selection of apparatus for use in such locations.
- 4.1.6 SANS 60079-0:2005/IEC 60079-0:2004
Electrical apparatus for explosive gas atmospheres Part 0: General requirements
- 4.1.7 SANS 60079-10:2005/IEC 60079-10:2002
Electrical apparatus for explosive gas atmospheres Part 10: Classification of hazardous areas
- 4.1.8 SANS 61241-10:2005/IEC 61241-10:2004
Electrical apparatus for use in the presence of combustible dust Part 10: Classification of areas where combustible dusts are or may be present
- 4.1.9 SANS 61241-4:2001/IEC 61241-10:2004
Electrical apparatus for use in the presence of combustible dust Part 4: Type of protection “pD”

Note: No calculations will be asked on this standard

4.1.10 SANS 10123:2001

The control of undesirable static electricity.

Note: No calculations will be asked on this standard

TOTAL MARKS: 100

4.2 SPECIFIC CONTENTS PAPER 2 (CODE: 8080644)

4.2.1 Occupational Health and Safety Act, Act 85 of 1993
Section 1, 8, 9, 10 and 22

4.2.2 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Installation Regulations

4.2.3 Occupational Health and Safety Act, Act 85 of 1993 - Electrical Machinery Regulations

4.2.4 SANS 10142-1:2008
The wiring of premises Part 1: Low-voltage installations (Emphasis on Certificate of Compliances)

4.2.5 SANS 10086-1:2003
The installation, inspection and maintenance of equipment used in explosive atmospheres Part 1: Installations including surface installations on mines.

4.2.6 SANS 10086-2:2006
The installation, inspection and maintenance of equipment used in explosive atmospheres Part 2: Electrical apparatus installed underground in mines

4.2.7 SANS 10086-3:2001
The installation, inspection and maintenance of equipment used in explosive atmospheres Part 3: Repair and overall of apparatus used in explosive atmospheres.

4.2.8 SANS 10089-2:2007
The petroleum industry – Part 2: Electrical and other installations in the distribution and marketing sector

4.2.9 SANS 61241-17:2006
Electrical apparatus for use in the presence of combustible dust Part 17: Inspection and maintenance of electrical installations in hazardous areas (other than mines)

TOTAL MARKS: 100